

**BUREAU OF ENVIRONMENTAL REMEDIATION/REMEDIAL SECTION  
POLICY  
DEVELOPMENT OF DRAFT CADs**

**BER POLICY # BER-RS-009**

**DATE: September 26, 1995**

**REVISED 2001**

**REVISED 2005**

**PAGES: 1 with attachment**

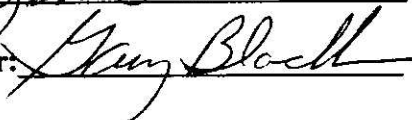
**Section Chief:**



**Date:**

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**Bureau Manager:**



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***REVISIONS***

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**Reviser: Rick Bean**

**Date of Revision: 12/17/2001**

***ORIGINATOR***

**Originator: Rick Bean**

**Date: 9/26/1995**

**Kansas Department of Health and Environment  
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An example Draft Corrective Action Decision (CAD) developed for low to medium priority sites is attached to this memorandum to assist in streamlining the overall process and development of the Draft CADs. **The Draft CAD for lower priority sites may be one or two pages in length.** For high priority sites where public or private water supply wells are impacted, heightened public interest is evident, or where municipalities or other governmental interests are involved, a more detailed Draft CAD should be used. Discuss your site with your unit leader to verify which Draft CAD format to use.

Portions of the new example Draft CAD are "boilerplate" meaning the text within the example Draft CAD should be used by completing the blanks. Boilerplate sections include: Section 1.0 and Section 7.0.

**Sections 2.0, 3.0, 4.0 and 5.0 should be very brief and concise (no more than half of a page). Refer the reviewer to the appropriate approved report (i.e. CI Report, CAS Report) for additional information, if necessary.**

Section 6.0 should be more detailed since you are describing the Preferred Remedial Alternative. The first paragraph and the next sentence are boilerplate language and should always be used. Section 6.0 should be no longer than one page. Include estimated costs and operating life if possible.

The new example Draft CAD should drastically reduce the time needed to develop a Draft CAD. **For most sites, the objective is to provide a brief summary of the actions, risks and preferred remedial alternative to address a site.** Common sense should govern how much time is spent developing a Draft CAD (i.e. low priority sites should take a minimal amount of time).

(See attached example)

**ATTACHMENT TO POLICY BER-RS-009**

**KDHE's CORRECTIVE ACTION DECISION  
FOR  
----- REMEDIATION**

**D R A F T**

**-----SITE**

**-----, KANSAS**

**-----, 200-**

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## ATTACHMENTS

## **1.0 PURPOSE OF DRAFT CORRECTIVE ACTION DECISION**

The primary purposes of the draft CAD are to: 1) summarize key information from the Comprehensive Investigation (CI) and Corrective Action Study (CAS) reports; 2) briefly describe the alternatives for site remediation detailed in the CI and CAS reports, and draft CAD; and 3) provide an opportunity for public comment on KDHE's preferred remedial alternative. To allow public comment a public hearing will be held on \_\_\_\_\_, 200\_ ; the public may also submit written comments to KDHE during the public comment period (\_\_\_\_\_, 200- to \_\_\_\_\_, 2000).

CI and CAS reports were prepared for the \_\_\_\_\_ Site by \_\_\_\_\_, the consultant for \_\_\_\_\_. Work performed during the CI and CAS process followed the terms outlined in a Consent Agreement between \_\_\_\_\_ and KDHE. The public is encouraged to review and comment on the technical information presented in the RI and FS reports and other documents contained in the Administrative Record file (AR file). The AR file includes all pertinent documents and site information, which form the basis and rationale for selection of the remedial alternative. Both the CI and CAS reports, the draft CAD and the AR file are available for public review and copying at the following locations:

Kansas Department of Health and Environment  
Bureau of Environmental Remediation  
1000 SW Jackson, Suite 410  
Topeka, Kansas, 66612-1367  
CONTACT: \_\_\_\_\_  
Remedial Section  
(913) 296-1665

Kansas Department of Health and Environment  
\_\_\_\_\_ District Office  
\_\_\_\_\_  
\_\_\_\_\_, Kansas  
CONTACT: \_\_\_\_\_, District Geologist  
( ) \_\_\_\_\_

\_\_\_\_\_ Library  
\_\_\_\_\_  
\_\_\_\_\_, Kansas 6\_\_\_\_\_  
CONTACT: \_\_\_\_\_  
( ) \_\_\_\_\_

## **2.0 SITE BACKGROUND**

The \_\_\_\_\_ Site is located in \_\_\_\_\_, Kansas in \_\_\_\_\_ County. The approximate boundaries of the \_\_\_\_\_ Site are illustrated in Figure 1. The Site is approximately \_\_\_\_\_ acres in size, covers an area approximately \_\_\_\_\_ miles long from north to south, and varies in width from \_\_\_\_\_ to \_\_\_\_\_ miles from west to east.

The land use within the \_\_\_\_\_ Site include residential, commercial, recreational, and industrial. The 2000 census information indicated that the population of \_\_\_\_\_, Kansas is \_\_\_\_\_.

In 199\_, KDHE conducted a Preliminary Assessment (PA) and Screening Site Investigation (SSI) of the Site. The investigations were documented in a report submitted by KDHE to US EPA in \_\_\_\_\_, 199\_, which recommended that \_\_\_\_\_.

Additional information concerning the site is described in \_\_\_\_\_ Report, dated \_\_\_\_\_.

## **3.0 SUMMARY OF THE COMPREHENSIVE INVESTIGATION**

The objectives of the CI include: (CI SOW objectives)

The field activities conducted at the site consisted of the following:

- Installation and development of \_\_\_\_\_ monitoring wells at \_\_\_\_\_ locations, with at least one deep and one shallow well at each location
- Collection of \_\_\_\_\_ subsurface soil samples for organics and metals analyses
- Sampling and analyses of \_\_\_\_\_ of the newly installed monitoring wells and \_\_\_\_\_ existing wells
- Collection and analyses of \_\_\_\_\_ indoor air quality samples
- Collection and analyses of \_\_\_\_\_ surface water samples
- Collection and analyses of \_\_\_\_\_ sediment samples
- Aquifer pumping tests to define aquifer characteristics at 5 locations

(Include a brief paragraph on the geology and hydrogeology at the site.) Results of investigations conducted indicate the geology at the Site consists of \_\_\_\_\_. Groundwater at the Site is encountered at \_\_\_\_\_ feet below ground surface. The saturated thickness of the aquifer is about \_\_\_\_\_ feet. Groundwater at the Site flows to the (direction).

(Include a brief paragraph that identifies the contaminants, the contaminated media, the source of contamination, and the extent of contamination in each media. If there are multiple contaminants of concern, consider providing a table that summarizes the contaminants detected at the site, the highest concentrations detected for each media, and the appropriate MCLs, KDHE Tier 2 Risk-Based Standards, or site-specific risk-based concentrations.) Results of the CI indicate the contaminants of concern in groundwater and soil are (list of contaminants). The source of contaminants was identified as (list of sources). A plume of contaminated groundwater extends

\_\_\_ feet to the (direction) from the (facility).

Results of the CI are summarized in the \_\_\_\_\_ Report, dated \_\_\_\_\_.

#### **4.0 SUMMARY OF SITE RISKS**

The objective of the \_\_\_\_\_ Site risk assessment was to evaluate potential human health and ecological risks that might result from exposure to chemicals present at the \_\_\_\_\_ Site if no remediation was performed. Risks (i.e., those posed by the Site in the absence of any remediation) are subsequently used as one of several criteria to evaluate proposed remedial alternatives and set remedial action goals.

(1 paragraph description of risks - future, current and pathways; also discuss the pathways that were eliminated)

Based upon the findings of the CI/CAS, the following remedial response objectives have been established for the \_\_\_\_\_ Site.

1. Prevent future on-site ingestion of contaminated ground water that would exceed EPA's recommended  $10^{-4}$  to  $10^{-6}$  risk level.
2. Prevent off-site migration of contaminated ground water that would exceed EPA's recommended  $10^{-4}$  to  $10^{-6}$  risk level.
3. Prevent future risks of inhalation of VOCs through showering that would exceed EPA's recommended  $10^{-4}$  to  $10^{-6}$  risk level.

#### **5.0 SUMMARY OF REMEDIAL ALTERNATIVES EVALUATED**

The remedial alternatives that were evaluated during the CAS are presented below. These alternatives, which were formulated by combining the technologies and process options are numbered to correspond with the CAS report.

- Alternative 1: No Action.
- Alternative 2: Limited Action.
- Alternative 3:  $10^{-4}$  Extraction, Treatment and Reinjection
- Alternative 4:  $10^{-4}$  Extraction, Treatment, Reinjection with In situ Bioremediation

A detailed breakdown of each alternative is summarized in the CAS Report, dated \_\_\_\_\_.

## **6.0 SUMMARY OF THE PREFERRED REMEDIAL ALTERNATIVE**

The Kansas Department of Health and Environment (KDHE) has determined that the preferred remedial alternative for the \_\_\_\_\_ Site, outlined below, satisfies or meets the criteria established by both the State and Federal programs and will be protective of human health and the environment.

The preferred remedial alternative for the \_\_\_\_\_ Site is described below:

- Institutional Controls - Establish institutional controls within the defined boundaries of the \_\_\_\_\_ Site. \_\_\_\_\_.
- Hydraulic Containment - Establish hydraulic containment of contaminated ground water through the implementation of ground water extraction, treatment and disposal.  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_.
- Compliance Monitoring - Establish compliance monitoring wells at the zero line (i.e. the area where ground water contamination is below the MCLs) to monitor on a quarterly basis or other frequency as determined by KDHE for the chemicals of concern. If any one of the compliance monitoring wells exceed the MCLs, additional remediation may be required.
- Long Term Monitoring - Long term monitoring would be required at the compliance and selected monitoring wells for a minimum period of ten years of annual monitoring following termination of hydraulic containment.
- Individual Source Control Activities - Individual source control activities must be established at all identified source areas to eliminate and/or reduce the toxicity, mobility and volume of waste/contaminant at the site. \_\_\_\_\_.

## **7.0 COMMUNITY INVOLVEMENT**

A Public Information Program Plan for the \_\_\_\_\_ Site was developed by KDHE in \_\_\_\_\_. Public input and comment has been encouraged by KDHE throughout the process. Notice of the Draft Corrective Action Decision and public meeting will be published in the (*name of the local newspaper*). All comments which are received by KDHE prior to the end of the public comment period, including those expressed verbally at the public meeting will be addressed by KDHE in the Response to Comments Summary Section of this Final Corrective Action Decision.